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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,505	01/21/2004	Jiro Hiraiwa	247935US2	1488

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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ZHENG, LOIS L

ART UNIT	PAPER NUMBER
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1742

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	02/21/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 02/21/2007.

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<b>Office Action Summary</b>	Application No. 10/760,505	Applicant(s) HIRAIWA ET AL.	
	Examiner Lois Zheng	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 November 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-8 and 12-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Status of Claims***

1. Claims 1, 3-5, 7-8 are amended in view of the amendment filed on 22 November 2006. New claims 9-13 are added in view of the amendment. Therefore, claims 1-13 remain under examination.

### ***Abstract***

2. The replacement abstract filed 22 November 2006 is accepted and entered.

### ***Specification***

3. The replacement specification filed 22 November 2006 is accepted and entered.

### ***Drawings***

4. The replacement sheet for Figure 6 filed 22 November 2006 is still objected since Figure 6 illustrates a conventional electrolytic apparatus, therefore, should be designated by a legend such as "Prior Art", not "Related Art".

Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office Action to avoid abandonment of the application. The replacement Sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84©) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office Action. The objection to the drawings will not be held in abeyance.

### ***Status of Previous Objections/Rejections***

5. The objection to claims 4-8 is withdrawn in view of the claim amendments.

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6. The rejection of claim 4 under 35 U.S.C. 112, second paragraph, is withdrawn in view of the amendment.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 3-4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The instant specification discloses a bottom plate(Fig. 1 #61). However, the instant specification does not teach whether or not this bottom plate is sufficient to function as an support member as claimed. Therefore, the claimed support member as recited in claims 3-4 is not literally supported by the specification.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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10. Claims 3 and 7-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Tricoli et al. US 3,773,644(Tricoli).

Tricoli teaches an electrolytic cell for the production of fluorine(abstract), wherein the electrolytic cell comprises heating and cooling means(i.e. first heat exchange means) surrounding the electrolytic cell(col. 2 lines 47-52), an electrical insulating material (Figure #14, col. 3 lines 31-32) and a gas seal (col. 3 lines 28-29) disposed in the electrolytic cell. Tricoli's electrolytic apparatus is inherently capable of electrically insulating and gas sealing simultaneously as claimed.

Regarding the amended features of "a support member" and "a cover member" as recited in amended claim 3, the cell cover(Figure #3) or the stuffing box(Figure #7) as taught by Tricoli reads on the claimed cover member and the electrolytic cell of Tricoli also appear to rest on a support member as shown in the figure. In addition, since instant claim 3 does not recite which part of apparatus the support member is supporting, the examiner concludes that the brushing attached grid-protected opening supporting the anodes in the electrolyte(col. 3 lines 30-36) as taught by Tricoli reads on the claimed support member as well.

Based on the positioning of the electric insulating material, the gas sealing material, the support member and the cover member as shown in the Figure of Tricoli, the electric insulating material and the gas sealing material are disposed in between the support member and the cover member as claimed.

Regarding claim 7, the electrolytic cell tank as taught by Tricoli reads on the claimed box configured to open at an upper part as claimed.

Regarding claim 8, example 3 of Tricoli further teaches that the electrolyte comprises hydrogen fluoride as claimed (col. 6 lines 7-8).

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 5-6 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tricoli in view of Whitaker US 2,506,438(Whitaker).

The teachings of Tricoli are discussed in paragraph 10 above. However, Tricoli does not explicitly teach the claimed flow line to flow a heat exchanging medium around the electrolytic cell as claimed.

Whitaker teaches an electrolytic cell for producing fluorine, wherein the electrolytic cell comprises jackets for control temperature of the electrolyte(title, col. 2 lines 25-26). Whitaker further teaches passing cooling fluid through the jackets to maintain the operating temperature(col. 3 lines 49-51).

Regarding claim 5, even though Tricoli does not explicitly teach how the surrounding jacket is used for heating and cooling the electrolyte, the Figure of Tricoli appears to have open channels in the jacket allowing fluid flow. Therefore, one of ordinary skill in the art would have found it obvious to have incorporated the technique of temperature control via passing cooling fluid through the jackets as taught by Whitaker into the temperature control jacket of Tricoli with expected success since the

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jackets of Tricoli and Whitaker perform the same function and the jacket as shown in the Figure of Tricoli is capable of supporting the passing of the cooling fluid as taught by Whitaker. Therefore, the claimed flow line to flow a heat exchanging medium would have been present in the jacket of Tricoli in view of Whitaker.

Regarding claim 6, even though Tricoli in view of Whitaker do not explicitly teach that the cooling fluid is water, one of ordinary skill in the art would have found it obvious to supply water through the jacket of Tricoli in view of Whitaker to provide cooling effect to the electrolytic cell since water is low cost and readily available. Therefore, water as cooling fluid as taught by Tricoli in view of Whitaker is a highly electric insulating fluid.

Regarding claims 12-13, the instant claims are rejected for the same reasons as stated in the rejection of claims 7-8 above.

13. Claims 5-6 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tricoli in view of Kondo et al. US 5,160,415(Kondo).

The teachings of Tricoli are discussed in paragraph 10 above. However, Tricoli does not explicitly teach the claimed flow line to flow a heat exchanging medium around the electrolytic cell as claimed.

Kondo teaches an electrolytic cell for producing fluorine, wherein the electrolytic cell comprises a hot water jacket for control temperature of the electrolyte(title, col. 12 lines 17-18).

Regarding claim 5, even though Tricoli does not explicitly teach how the surrounding jacket is used for heating and cooling the electrolyte, the Figure of Tricoli appears to have open channels in the jacket allowing fluid flow. Therefore, one of

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ordinary skill in the art would have found it obvious to have incorporated the technique of temperature control via passing hot water through the jacket as taught by Kondo into the temperature control jacket of Tricoli with expected success since the jackets of Tricoli and Kondo perform the same function and the jacket as shown in the Figure of Tricoli is capable of passing hot water as taught by Kondo. Therefore, the claimed flow line to flow a heat exchanging medium would have been present in the jacket of Tricoli in view of Kondo.

Regarding claim 6, the hot water as taught by Tricoli in view of Kondo is a highly electric insulating fluid as claimed.

Regarding claims 12-13, the instant claims are rejected for the same reasons as stated in the rejection of claims 7-8 above.

#### ***Allowable Subject Matter***

14. Claims 1-2, 4 and 9-11 are allowed.

15. The following is an examiner's statement of reasons for allowance: the prior art of record, either alone or in combination, does not teach or fairly suggest an electrolytic apparatus comprising a first heat exchange means, an outer frame sealed and disposed surrounding outside of the first heat exchange means with space and a decompression or a vacuum insulating zone formed in the outer frame.

#### ***Response to Arguments***

16. Applicant's arguments filed 22 November 2006 have been considered but are moot in view of the new grounds of rejections.



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***Conclusion***

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LLZ

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